DOCUMENT RESUME

ED 279 778 UD 025 393

TITLE	Project COM-TECH (Bilingual Computer- and Technology-Oriented Program), 1985-86. OEA Evaluation Report.
INSTITUTION	New York City Board of Education, Brooklyn. Office of Educational Assessment.
SPONS AGENCY	Department of Education, Washington, DC.
PUB DATE	[86]
GRANT	G00-852-5023
NOTE	38p.
AVAILABLE FROM	Office of Educational Assessment, New York City Board of Education, 110 Livingston Street, Brooklyn, NY, 11201.
PUB TYPE	Reports - Evaluative/Feasibility (142)
EDRS PRICE	MF01/PC02 Plus Postage.
DESCRIPTORS	*Bilingual Education Programs; *Computer Assisted Instruction; English (Second Language); Haitians; High Schools; Hispanic Americans; *Limited English Speaking; *Program Effectiveness; Program Implementation; Staff Development; Urban Schools
IDENTIFIERS	*New York (Brooklyn); *New York (Manhattan)

ABSTRACT

In 1985-86, Project COM-TECH offered bilingual individualized instruction to 300 limited-English proficiency students at two New York City high schools (Bushwick in Brooklyn, and Brandeis in Manhattan). Using an enrichment approach, the project provided supplementary instruction in English as a second language (ESL), native language arts, and native language instruction in mathematics, science, and social studies. In the first year of a three-year funding cycle, the project was not able to realize all of its original goals. Installation delays prohibited the opening of a bilingual computer-education enrichment center at Brandeis, and funding delays stalled the work of a resource specialist at Bushwick. Project goals were not met in the areas of staff development and parental involvement, but student achievement objectives were met in ESL, native language arts, content areas, and student attendance. Day-to-day operation of the program might be improved by: developing closer contact between Brandeis and the central office and between the staffs of the two participating sites, improving the physical space of the computer centers at each school, and collecting all the data necessary to assess all program objectives. (KH)

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PROJECT COM-TECH

(Bilingual Computer- and
Technology-Oriented Program)

1985-86

OEA Evaluation Report

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O.E.A. Evaluation Section Report

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Grant Number: G00-852-5023

PROJECT COM-TECH

(Bilingual Computer- and
Technology-Oriented Program)

1985-86

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A SUMMARY OF THE REPORT

In its first year of a three-year funding cycle under Title VII of the Elementary and Secondary Education Act (E.S.E.A.), Project COM-TECH'S primary goal was to provide bilingual individualized instruction, using an enrichment approach, to 300 Spanish- and Haitian Creole/French-speaking students of varying levels of English- and native-language proficiency and academic preparedness. Two hundred and eleven Spanish-speaking students participated in the project at Bushwick High School in Brooklyn; 89 Haitian Creole/French-speaking students participated in the project at Louis G. Brandeis High School in Manhattan. Because of delays in receiving the grant award, the project did not begin operating until April 1985.

The program provided supplementary instruction in English as a second language (E.S.L.) and native language arts, as well as native language instruction in mathematics, science, and social studies. An innovative part of the program was its component presenting computer science and academic skills in career-related courses.

At the core of the original project design was the bilingual computer-education enrichment center that was to have been established at each high school to provide computer instruction, tutoring, career advising, counseling, and exam preparation, and to sponsor career- and culture-related trips. The centers also were intended as places to exhibit Haitian and Hispanic cultural materials and class work on career skills and computer literacy. Because of installation delays, the computer component of the Brandeis center was not in operation as of May 1986; the Bushwick center was fully operational in May 1985.

At Bushwick, Title VII funded a full-time resource specialist and a full-time paraprofessional to work in the enrichment center. At Brandeis, Title VII funded a resource specialist who also taught bilingual math and science classes, and a paraprofessional. Because of funding delays, the Bushwick resource specialist did not start work until June 1985 and the Brandeis specialist did not start work until the following September. Staff members worked with a program coordinator who reported to the program director. However, since the program's central office was not on-site, staff members were supervised by the assistant principal for foreign languages at each site. Some school administrators expressed the need for more frequent and direct communication with the project director at the central office.

Staff development activities included training by the project director at the central site, participation in meetings and workshops at each school, university courses, and outside conferences. In addition, staff at both sites attended monthly meetings with their respective assistant principals and with bilingual teachers to discuss issues of bilingual education.

Another innovative aspect of the program was its basic skills component for parents. Evening or weekend classes were to have been offered at

both sites, but Bushwick High School's location in a high-crime area made it impossible to hold evening classes, and no suitable weekend site could be found. At the Brandeis site, the parents' basic skills component operated on weekends, using the basement of a neighborhood community center.

The objectives assessed in this report were revised according to the suggestions of the project director so that the available data could be used more adequately. Project objectives were assessed in English-language development (Criterion Referenced English Syntax Test [CREST]); native language arts (teacher-made exams); mathematics, science, social studies, business/vocational courses (teacher-made exams); attendance (school and program records); staff development (school records); and parental involvement (attendance at open meetings). Analysis of the data indicates the following:

-- Students mastered 1.3 and 2.8 CREST objectives per month in the fall and spring, respectively, thus meeting the proposed objective.

-- Overall, students in native language arts classes surpassed the proposed 70 percent passing criterion set by the program.

-- The program objective was achieved for students enrolled in content-area courses of study with an overall passing rate of 70.3 percent.

-- The attendance rate of program students was significantly higher ($p \leq .05$) than that of mainstream students.

The following recommendations are made for improving COM-TECH's day-to-day operation:

-- Developing closer contact between Brandeis and the central office.

-- Developing closer contact between the staff of the two participating sites.

-- Finding more space for the Bushwick computer-education resource center.

-- Removing the shop machinery from the Brandeis computer-education resource center.

-- Collecting all the data necessary to assess all program objectives.

ACKNOWLEDGEMENTS

The production of this report, as of all Office of Educational Assessment/Bilingual Education Evaluation Unit reports, is the result of a cooperative effort of regular staff and consultants. In addition to those whose names appear on the cover, Eulalia Cabrera has interpreted findings and has integrated material into reports. Arthur Lopatin has edited the reports following the O.E.A. style guide and has written report summaries. Finally, Joseph Rivera, Marcia Gilbert, Bruce Roach, Gladys Rosa, and Martin Zurla have worked intensively as word processors to produce and correct reports. Without their able and faithful participation, the unit could not have handled such a large volume of work and still produced quality evaluation reports.

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PROJECT COM-TECH

Central Office:	1171 65th Street Brooklyn, NY 11219
Sites:	Bushwick High School Brooklyn, New York 11237
	Louis G. Brandeis High School New York, New York 10024
Year of Operation:	1985-86, First Year of Three-Year Funding Cycle
Languages of Instruction:	Spanish, Haitian Creole/French
Number of Participants:	300 Students
Project Director:	Angelo Gatto
Project Coordinator:	Yannick Morin

I. OVERVIEW

In the 1985-86 school year, the Bilingual Computer- and Technology-Oriented Program (Project COM-TECH) completed its first year of a three-year Title VII funding cycle. Its primary objective was to provide bilingual individualized instruction, using an enrichment approach, to limited English proficient (LEP) students who had widely varying English- and native-language abilities and levels of academic preparedness. In addition, the program was designed to instill in its students a sense of pride in their native cultures through exposure to their arts, histories, and languages.

The project served a total of 300 students at two schools, each of which served a different language group:

-- Bushwick High School in Brooklyn, served 211 Spanish-speaking students;

-- Louis G. Brandeis High School in Manhattan, served 89 Haitian Creole/French-speaking students.

Program students received instruction in English as a second language (E.S.L.) and in native language arts, as well as native language instruction in mathematics, science, and social studies.

An innovative part of the program was its component offering computer science and academic skills in career-related courses. A bilingual computer-education enrichment center was to have been established at each site to provide computer instruction, tutoring, career advising, counseling, and assistance in preparing for exams. These centers were also intended as places for exhibiting Haitian and Hispanic cultural materials and classwork on career skills and computer literacy. The enrichment centers are central to the original design of this Title VII-funded project.

At Bushwick the project provided a resource specialist and a paraprofessional. Both worked full-time in the education enrichment center. At Brandeis, the project provided a resource specialist, who also taught bilingual classes in math fundamentals and science, and a paraprofessional. Program staff operated each site's enrichment center, providing instruction, tutoring, guidance, and parent communication.

Both resource specialists are highly qualified and experienced in bilingual education. The resource specialist at Bushwick directed a federally-funded program at Long Island University for six years, during which time she trained bilingual teachers. The resource specialist at Brandeis has a Ph.D. in French and five years' experience as a high school teacher in Haiti. He therefore was well acquainted with the environment that most of his students came from.

Staff members worked with a program coordinator who reported to the program director. However, because the program's central office was not

on-site, staff members were supervised by the assistant principal for foreign languages at each school. Because of this physical arrangement, some school site administrators expressed the need for more frequent and direct communication with the project director at the central office.

The program coordinator noted that, because of the delay in receiving the grant award, full implementation of the program was delayed until April 1985. The coordinator noted that the late start had made it hard to screen prospective students and caused a delay in hiring resource specialists for each site. The Bushwick resource specialist started work in June 1985; the Brandeis specialist began in the following September.

Another innovative aspect of the original proposal was the basic skills component for parents. Evening or weekend classes were to have been offered at both sites. However, the coordinator noted that they could not be offered at Bushwick High School because of its location in a deteriorated, high-crime area. Bushwick's principal considered the neighborhood dangerous after dark; during the winter months he closed the high school at 3:30 P.M. At the Brandeis site, the parents' basic skills component was in operation, utilizing the basement of a neighborhood center as a classroom.

II. STUDENT CHARACTERISTICS AND SETTING

Bushwick High School is located in a deteriorated neighborhood with a reputation for violent street crime. In 1984-85, Bushwick's student population was 2,145 students, of whom 1,490 were Hispanic, 625 were black, and the remainder were white, Asian, or American Indian. About half of Bushwick's students were eligible for the free-lunch program. Slightly more than half read below grade level.

Brandeis High School is located on the west side of Manhattan, in a neighborhood that, compared with Bushwick's, is relatively well maintained and clean, and does not have the reputation for street crime that Bushwick has. The resource specialist noted that many of the neighborhood's Haitians are relocating to Queens or Brooklyn. There were 2,844 students at Brandeis, of whom 1,621 were Hispanic and 1,169 black, with the rest either white or Asian. Forty-five percent of the students were eligible for the free-lunch program.

The Bushwick resource specialist noted that ten years ago, most of the Hispanic students were Puerto Ricans and Cubans. Lately, although most of Bushwick's mainstream Hispanics are Puerto Ricans, most of Bushwick's COM-TECH students came from Central America, the Dominican Republic, and Ecuador. (See Table 1.) The specialist pointed out that the program students generally had a positive attitude toward school. Although some were well prepared in content areas, they would not have done well in mainstream classes because of their limited English proficiency. Others, mainly those from rural areas, had less formal education, but were not illiterate.

Haitian students entered the system with widely varying native-language skills. Most were Creole speakers and had fairly rudimentary skills in French. Some were from rural areas and may have had only a few years of formal education prior to arriving in the U.S.

The resource specialist at Brandeis noted that several major differences between American and Haitian schools affected the students' attitude and performance. In Haiti they were used to an authoritarian classroom environment, in which respect for the teacher was stressed. Students were not encouraged to express their opinions, and little dialogue took place between teacher and student. When they came to American schools, they discovered that discipline is more lax. The resource specialist noted that this sometimes led to problems with students who found it hard to control their classroom behavior and lost respect for their teachers.

Two hundred and sixty-nine students (90 percent) were in the program for less than a year. Well over half of them (175 students) were in the ninth and tenth grades. A substantial minority of students came from middle-income families and entered the U.S. school system above grade level in most content areas. Tables 2 and 3 present the program students by sex and grade and by age and grade, respectively.

TABLE 1

Number and Percent of Program
Students by Language and Country of Birth

Language	Country of Birth	Number	Percent
Spanish	Dominican Republic	73	26
	Puerto Rico	60	22
	Ecuador	13	5
	Honduras	10	4
	El Salvador	8	3
	Nicaragua	5	2
	Costa Rica	2	*
	Guatemala	2	*
	Panama	2	*
	Colombia	1	*
	Peru	1	*
Haitian Creole	Haiti	81	29
	United States	21	8
TOTAL		279**	100

*Less than one percent.
**Data were missing for 21 students.

- Seventy-one percent of all program students were native speakers of Spanish. Over a third of the students in this group were born in the Dominican Republic. The next largest subgroup was born in Puerto Rico.

- Twenty-nine percent of the program students were Haitian-born; they were native speakers of Haitian Creole.

TABLE 2

Number of Program Students by Sex and Grade

Age	Number Male Students	Percent of Grade	Number Female Students	Percent of Grade	Total Number	Percent of All Students
9	47	48	50	52	97	35
10	37	44	47	56	84	29
11	30	48	32	52	62	22
12	20	53	18	47	38	14
TOTAL	134	48*	147	52*	281**	100

*Percent of program students.
**Data were missing for 19 students.

- Female students outnumbered male students in the ninth, tenth, and eleventh grades.
- The number of program students decreased in grades eleven and twelve.

TABLE 3

Number of Program Students by Age and Grade

Age	Grade 9	Grade 10	Grade 11	Grade 12	Total
13	2	0	0	0	2
14	6	0	0	0	6
15	25	8	3	0	36
16	29	25	5	1	60
17	26	25	15	8	74
18	8	17	23	15	63
19	5	10	8	5	28
20	0	4	5	4	13
21	0	0	3	3	6
22	0	0	1	0	1
TOTAL	101	89	63	36	289*
Overage Students					
Number	68	56	40	12	176
Percent	67	63	63	33	61

Note: shaded area indicates expected age range for grade.
*Data were missing for 11 students.

- The majority (61 percent) of program students were overage for their grade.
- The highest percentage of overage students was in grade nine (67 percent); the lowest percentage was in grade twelve (33 percent).

III. FINDINGS

The evaluation findings for the 1985-86 project year include the results of standardized and teacher-made tests, a review of program records, site visits, interviews with project and school personnel, as well as with program students, and classroom observations. This section presents the findings by program objectives, as revised by the project director in consultation with the Office of Educational Assessment and approved by the Office of Bilingual Education and Minority Languages Affairs (U.S. Department of Education).

ENGLISH AS A SECOND LANGUAGE

-- As a result of participating in the program, students in English as a second language classes will master an average of one English syntax objective per 20 days of instruction.

Students' initial E.S.L. level was determined by an examination and teacher recommendations. Depending upon their placement level, students received two or three periods of E.S.L. per day.

A member of the evaluation team visited an introductory-level and an intermediate-level E.S.L. class at Bushwick High School. Enrollment in both classes was relatively small (eight and nine students, respectively), and teachers were able to give ample individual assistance to students who needed it. Both classes focused on grammatical forms and paradigms, using question-and-answer, repetition, and drill as the main pedagogical strategies. In the intermediate class, the teacher also held an informal competition. Because the students seemed to enjoy this, their motivation to learn the material was enhanced.

Student Achievement in E.S.L.

The assessment instrument used to evaluate the objective in this area was the Criterion Referenced English Syntax Test* (CREST). The CREST was developed by the New York City Public Schools to measure mastery of the syntax skills presented in the E.S.L. curriculum. The CREST uses four items to measure each skill, and mastery is achieved when three of the four items are answered correctly. The test has three levels: beginning (1), intermediate (2), and advanced (3). Levels 1 and 2 each measure mastery of 25 skills, while level 3 measures mastery of 15 skills.

The CREST was administered at the beginning and end of each semester. A mastery score to indicate gains was computed for each student by calculating the difference between pretest and posttest. The number of skills mastered per month was calculated by dividing the mean mastery by the mean number of months of instruction between testings.

Table 4 presents the results for students who were pretested and posttested with the same CREST level at Brandeis High School. CREST data for students at Bushwick High School were not available at the time this report was written because computer tapes had not yet been prepared by the Board of Education. Of the students who were reported to have taken the CREST, complete data (levels, pretest score, and posttest score) for the entire program were available for 9.6 percent in the fall and 13.0 percent in the spring.

*Extensive information on CREST syntax skills and psychometric properties is in the Technical Manual, New York City English as a Second Language Criterion Referenced English Syntax Test. (Board of Education of the City of New York, Division of High Schools, 110 Livingston Street, Brooklyn, New York 11201.)

Examination of Table 4 reveals that, overall, the program objective of mastering one CREST objective per month was achieved and surpassed both during the fall and spring. Overall gains were larger in the fall (4.7) than in the spring (3.9). However, because the average time between pre- and posttesting was shorter in the spring (1.5 months) than in the fall (3.8 months), the achievement rate was noticeably higher for students at all levels in the spring. Of all students tested, 40.0 percent made actual gains in the fall, and 71.4 percent made gains in the spring. Students tested at level 3 had lower performance rates than those tested at lower levels, partly because fewer skills are tested at that level and partly because mastery of objectives appears to take longer. The program objective appears to be based on the assumption that progress across levels is linear; the lower achievement at level 3, which is found frequently in other bilingual high school programs, suggests that it is not.

TABLE 4

Results of the Criterion Referenced English Syntax Test

Test Level	Number of Cases	PRETEST Mean	PRETEST S.D.	GAIN Mean	GAIN S.D.	Objectives Mastered per Month
			FALL			
1	13	9.2	5.4	4.9	4.3	1.3
2	9	13.2	5.8	5.7	6.6	1.5
3	7	10.0	3.0	3.3	4.2	0.8
TOTAL	29	10.6	5.2	4.7	5.0	1.3
			SPRING			
1	9	7.4	5.9	4.2	2.8	2.9
2	15	12.9	5.8	4.3	4.8	3.3
3	15	8.1	3.2	3.3	2.3	2.2
TOTAL	39	9.8	5.5	3.9	3.5	2.8

- Overall, the objective was surpassed both semesters: on average, students mastered more than one CREST objective per month of instruction.

NATIVE LANGUAGE ARTS

-- At least 70 percent of the students enrolled in native language arts courses will score at or above the 65 percent passing criterion each semester.

Native-language arts instruction was provided at both sites under the supervision of the assistant principal for foreign languages. At Brandeis, native-language arts were offered in French but not in Creole.

It should be noted that the issue of French versus Creole is a complicated one for the Haitian community. Many parents, including many who are themselves Creole-dominant, insist that their children be taught in French, the language of education and public life in Haiti. However, other parents insist that Creole be used. In recent years, Haitian Creole has been increasingly codified and used as a written language, and more Creole literature has been produced. Because Creole material is still in short supply, the resource specialist at Brandeis developed his own teaching materials. He also sponsored a Haitian club and encouraged positive attitudes toward Creole.

Student Achievement in Native Language Arts

Table 5 presents the results of teacher-made tests in native language arts. Overall, the objective was met. Seventy-six percent of the students enrolled in native language arts courses achieved a passing grade. A breakdown of native language arts performance by school can be found in Appendix A.

TABLE 5

Number and Percent of Students Passing Courses in Native Language Arts

	Number of Students	Percent Passing Course
Fall	122	66.4
Spring	157	82.8
TOTAL	279	75.6

- Overall, the objective was achieved.
- Student performance was higher in the spring semester.

CONTENT-AREA INSTRUCTION

-- At least 70 percent of the students enrolled in mathematics, science, social studies, and business/vocational courses, will score at or above the 65 passing criterion each semester.

Although the principal noted a shortage of qualified bilingual teachers, particularly in math and science, Bushwick did offer a wide range of courses in Spanish. At Brandeis, French-language content-area instruction was offered in math, science, and social studies. Because he is fluent in both Creole and French, the resource teacher taught the math and science courses himself. Social studies was taught by someone fluent in French, but not in Creole.

A member of the evaluation team visited the social studies class at Brandeis and noted that there seemed to be good rapport and good communication between teacher and students. French was spoken throughout, although occasionally the teacher would repeat in English what he had just said in French.

A member of the evaluation team also visited three content-area classes at Bushwick -- one in math, and two in social studies. Each class was conducted entirely in Spanish. A similar teaching style was used in all three classes, with the teacher directing most of his or her remarks to the class as a whole, and then calling on individual students to answer questions or write problems on the board. Students were attentive at all times and required few or no reminders from their teachers to attend to the lesson.

Neither site had a formalized schoolwide policy for bilingual content-area instruction. The assistant principal for foreign languages at Bushwick noted that policy on the classroom use of English and the native

language was determined by the department head or the teachers in each content-area discipline. The assistant principal for foreign languages stressed the importance of focusing attention on content rather than language in content-area instruction.

Table 6 presents the passing rates for program students in mathematics, science, social studies, and business/vocational courses each semester. A weighted average for the year was also computed.

Examination of Table 6 reveals that, overall, the objective was met both in the fall and spring semesters. Students achieved an average passing rate of 71 percent in the fall, and 70 percent in the spring. Achievement was greatest in business/vocational* (93 percent) and social studies (82 percent) courses. Results of content-area examinations by school can be found in Appendix B.

*The business/vocational area includes computer science and career-related courses that are an innovative part of the COM-TECH project.

TABLE 6

Passing Rates for Content-Area Courses

	FALL		SPRING		TOTAL
	Number of Students	Percent Passing	Number of Students	Percent Passing	Overall Passing Rate
Mathematics	153	52.3	196	51.0	51.6
Science	106	65.1	123	69.1	67.3
Social Studies	176	80.7	215	82.3	81.8
Business/ Vocational*	51	88.2	55	98.2	93.4
TOTAL		70.6		70.0	70.3

Note: mathematics courses range from Fundamentals I to computer math; science courses range from general science to physics; social studies courses range from world geography to advanced placement; business/vocational courses include computer science and vocational (career-related) skills.

*Data were reported only for Bushwick High School.

- The program objective was met both semesters: students achieved an overall passing rate of 71 percent in the fall and 70 percent in the spring.
- Overall achievement was lowest in mathematics and highest in business/vocational subjects.

DEPARTURE AND ATTENDANCE RATES

Departure

Almost half of the students who left the program were graduating seniors. Table 7 presents the number of students leaving the program and their reasons for doing so.

Attendance

-- As a result of participating in the program, students' attendance will be significantly higher than the attendance of mainstream students.

Statistical significance between program and school attendance was determined through the application of a z-test for the significance of a proportion.* This procedure tests whether the difference between one proportion (the program's attendance) and a standard proportion (the school's attendance) is greater than what can be expected by chance variation.

The attendance rate for program students at Bushwick High School was 92.8, 17 percentage points above the schoolwide attendance rate (75.7). At Brandeis, the attendance rate for program students (94.4) was 13 percentage points higher than the schoolwide rate (81.7). The z-test results (z=2.25 and z=4.45, respectively) indicate that the differences in attendance rates are statistically significant ($p \leq .05$). These results, however, must be regarded with caution since attendance data were available for only 60 percent of the students at each school. Nevertheless, program staff at both sites reported that attendance rates were higher and dropout rates lower for COM-TECH students than for the mainstream students at each school.

*J.L. Bruning and B.L. Kintz, Computational Handbook of Statistics (Glenview, Illinois: Scott, Foresman and Company, 1968).

TABLE 7

Number of Students Leaving the Program

Reason For Leaving	Grade 9	Grade 10	Grade 11	Grade 12	Total
Discharged or transferred to alternative program	0	0	1	0	1
Transferred to another school	2	3	5	1	11
Graduated	0	0	0	24	24
Discharged (Job)	1	0	0	0	1
Other	8	4	0	0	12
TOTAL	11	7	6	25	49

- Almost half (49 percent) of the students who left the program graduated.
- Of the remaining students who left the program, 11 (22 percent) transferred to another school.

CULTURAL AWARENESS AND ATTITUDE TOWARD SCHOOL

Promoting cultural pride and enhancing academic interest and attitude toward school were among COM-TECH's major goals. The enrichment center, which provided computers for student use and organized special programs and trips in cooperation with the central office, appeared to be a particularly effective means of achieving these goals.

There were significant differences between the way the enrichment centers operated at each site. The Bushwick center seemed to be in full operation. Computers had been in use since October 1985. Although the room was quite small, several students were observed using the computers, and using the room for other purposes as well. At Brandeis, on the other hand, computers had not been set up as of May 1986. The principal of Brandeis noted that problems in getting proper wiring and a protective steel door had caused this delay. Since these delays had finally been overcome, the computers should be ready for students to use in the fall term of 1986. The room housing Brandeis' enrichment center is quite large. Even though it is shared with another bilingual program, the space would have been ample except for the fact that several large lathes took up nearly half the area. (The room had evidently been used previously as a machine-shop classroom.)

The resource specialist at Bushwick noted that students coming to the enrichment center could work at their own pace. They were encouraged to teach each other and to engage in collaborative, rather than competitive, learning. Several students who were interviewed expressed positive attitudes toward the center, noting that the resource specialist and paraprofessional assistant had helped them in various ways, ranging from computer

instruction to counseling. The Bushwick resource specialist noted that 20 to 25 students came to the enrichment center daily. She also noted that teachers came to the enrichment center for technical assistance, such as learning how to use computers in their own classes.

The resource specialist at Brandeis noted that about ten students per day used the enrichment center. Unlike the center at Bushwick, few materials were available, and only a few students used the room during the evaluator's site visit. The resource specialist noted that some activity occurred at the center after the official school day, including tutoring and meetings of the Haitian club. He used these opportunities to teach Creole literacy and Haitian history.

COM-TECH students also were taken on trips throughout the year, including visits to the IBM factory in Brooklyn, the Franklin Institute in Philadelphia, the United Nations, and the state government center in Albany, New York. At Bushwick, students used the computers to write compositions about each trip.

It appeared that, with few exceptions, such as Haitian Career Day, the project director and coordinator left the initiation of cultural activities to on-site staff, while they provided funds for trips and other activities.

STAFF DEVELOPMENT

-- All project staff members will enroll in at least one teacher education course each semester.

Project COM-TECH staff were involved in four types of staff development activities: training by the project director at the central site; participation in meetings and workshops at each school; university courses; and outside conferences and workshops.

Staff at both sites attended monthly meetings with their respective assistant principals, bilingual teachers, and E.S.L. teachers to discuss issues of bilingual education. The resource specialist at Bushwick, who had several years' experience training bilingual teachers at Long Island University, offered thirteen workshops for teachers and staff from several departments on a variety of issues, including computer literacy, implementing an educational enrichment center, and reviews of bilingual instructional materials available in various content areas.

The resource specialist at Bushwick completed a three-credit course on school finance and budgets for administrators at the City College of New York. The educational assistant took six credits in math at La Guardia College. Title VII staff at Brandeis were not enrolled in university courses during the 1985-86 year. The program objective was not met at this site.

PARENTAL INVOLVEMENT

-- At least 30 percent of the students' parents will participate in open school meetings each year.

Evening or weekend English or content-area basic skills courses for parents of program students, designed to help them qualify for a General

Equivalency Diploma (G.E.D.), were planned as an important innovative component of COM-TECH.

The basic skills program at Brandeis began operating in October. About 15 parents were enrolled. Classes were offered at the Holy Name Church Community Center for Haitian parents from 6:30 P.M. to 8:30 P.M. three days per week.

No basic skills component could be offered at the Bushwick site, however. The neighborhood's high crime rate made few adults willing to venture out after dark, and a suitable weekend facility could not be found. The project staff was looking for a site for weekend classes and hoped to inaugurate this component during the coming year.

Some parents participated in the educational trips that were provided for their children. Also, ten Bushwick parents attended two sessions to plan a parents' advisory council for COM-TECH. Seven Brandeis parents attended monthly sessions to discuss project goals, student progress, and career opportunities for students. As parental attendance data at these activities were not provided, the objective could not be assessed.

CURRICULUM DEVELOPMENT

Resource specialists at each site were developing curricula in various content areas. The resource specialist at Brandeis had been working on French/Creole curricula in math and science, which he teaches, throughout the school year. He planned to continue this work in the summer of 1986. The resource specialist at Bushwick had developed curricula on computer use. She also had assembled a large collection of materials and textbooks in science, social studies, and math which was intended to be used to

develop curricula in these areas that would comply with new New York State Regents regulations.

IV. CONCLUSIONS AND RECOMMENDATIONS

The major strengths of Project COM-TECH were its highly qualified and motivated bilingual staff and the enrichment centers that were being developed at each site. In addition to their educational functions, on-site staff also were unofficial student counselors and advisors, serving as important personal resources for their students. The enrichment centers, particularly the one at Bushwick, had become a "home base" for program students, a place to which they felt they could go for much-needed support, for cultural enrichment, and for a wide variety of information.

Computers were in operation only at the Bushwick site, where they were in constant use during the extensive period that the enrichment center was observed by an evaluation team member. It should also be noted that the resource specialist had many examples of work, such as written compositions in Spanish and/or English, that students had produced on the computer. The Bushwick enrichment center appeared to be operating at full capacity and with considerable benefit to a sizable number of LEP students. It could become a model for similar such centers at other sites. At the same time, the room housing the center was small and crowded, which perhaps hindered the full development of its potential for serving students.

Because of inadequate electrical currents at the site, the computer-enrichment center at Brandeis did not operate throughout the year, as it should have. Computers had not been installed by May 1986, although preparations for their installation had finally been completed. The resource specialist apparently had done his best to provide services to students, but it may be assumed that the presence of the computers would have enhanced the students' sense that the room belonged to them.

The programs seemed somewhat isolated from the central administration, and from each other. The resource specialist at Bushwick maintained frequent contact with central board administration, while the resource specialist at Brandeis appeared to have less. The principal and assistant principal for foreign languages at Bushwick felt that it was necessary for them to have more direct communication with the central office.

The project met its student achievement objectives in English as a second language, native language arts, content areas, and in student attendance. It did not meet its staff development and parental involvement objectives.

The following recommendations are offered as suggestions for improving the COM-TECH program's day-to-day operation:

-- Closer contact between Brandeis and the central board should be developed. More help from the central board's administrators (project director and project coordinator) in setting up the enrichment center at Brandeis would be beneficial.

-- Greater communication between the staff of each of the two participating sites could prove especially beneficial. Since the Bushwick enrichment center is in full operation and to all appearances highly successful, the Brandeis resource specialist might visit the site for a few days to get a detailed sense of how it operates and its formulas for success.

-- The resource specialist at Bushwick noted that lack of adequate space is a serious problem. This is due in part to the success of her program. It is recommended that the principal review, with the assistant principal for foreign languages, space priorities at the school to determine whether additional space might be provided.

-- It is recommended that the heavy machinery at the Brandeis site be removed. Its very presence contradicts the emphasis of Project COM-TECH on computer technology.

-- Efforts should be made to collect all the data necessary to assess all program objectives.

V. APPENDICES

APPENDIX A

Passing Rates In Native Language Arts Courses

School	Number of Students	Percent Passing	Number of Students	Percent Passing	Overall Passing Rate
Brandeis	24	66.7	23	78.3	72.8
Bushwick	98	66.3	134	83.6	76.3
TOTAL		66.8		82.8	75.6

APPENDIX B

Passing Rates in Content-Area Courses
at Bushwick High School

Course	Number of Students	Percent Passing	Number of Students	Percent Passing	Overall Passing Rate
Mathematics	103	50.5	140	40.7	44.8
Science	69	72.5	81	60.5	66.0
Social Studies	114	92.1	164	84.1	87.9
Business/ Vocational	51	88.2	55	98.2	93.4
TOTAL		74.8		67.8	70.8

APPENDIX B

Passing Rates in Content-Area Courses
at Brandeis High School

Course	Number of Students	Percent Passing	Number of Students	Percent Passing	Overall Passing Rate
Mathematics	50	56.0	56	76.8	58.0
Sciences	37	51.4	42	85.7	69.6
Social Studies	62	59.7	51	76.5	67.3
TOTAL		50.0		79.2	64.6